Patrick Lai

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EDUCATION

McGill University   Montreal, QC, Canada
B. ENG: SOFTWARE ENGINEERING   Expected December 2019
- Major GPA: 3.7/4.0
- NSERC Industry Undergraduate Research Award: 2016, 2017
- Notable Courses: Data structures and Algorithms, Machine Learning, Operating Systems, Databases, Programming Languages, Image Synthesis, Parallel Computing

WORK EXPERIENCE

Microsoft   Vancouver, BC, Canada
SOFTWARE ENGINEER INTERN   May - August 2018
- Worked with the Enterprise and Security team on a secure data management application using C# and UWP
- Designed and implemented back-end architecture for storing and retrieving data from a Windows Runtime service
- Wrote code for communicating with Windows storage APIs and serializing and encrypting data using JSON.NET and data protection APIs
- Implemented UI components according to Microsoft accessibility standards while following fluent design guidelines
- Participated in daily stand-up meetings, weekly sprint reviews and planning sessions to go over team progress

CAE   Montreal, QC, Canada
SOFTWARE DEVELOPER INTERN   September - December 2017
- Developed a framework in C# to automate validation and testing of flight simulation software and 3-D models.
- Created multithreaded simulations for navigation, environment and weather services using Java and Apache JMeter
- Reduced validation time of vehicle models and load testing from 2-3 days to overnight through integration into the automation software.
- Wrote scripts to allow the automation software to remotely connect to different servers without user configuration.
- Designed a GUI using Windows Forms to give users easy access to information about test packages and results

Sensequake   Montreal, QC, Canada
SOFTWARE DEVELOPER (INTERN AND PART TIME)   May 2016 - September 2017
- Prototyped and implemented building health analysis algorithms in C#, Math.NET and MATLAB
- Developed a desktop application using WPF and the MVVM pattern to create building models and analyze large data sets from vibration sensors
- Created 2-D and 3-D visualization tools for earthquake and mode simulations using OxyPlot and Helix Toolkit
- Developed a web application prototype using Node.js, three.js and Plotly to let users manage analysis results
- Improved 3-D animation of largest building cases from 12 to 60 frames per second by improving animation algorithm
- Optimized Stochastic Subspace Identification processes to reduce runtime of average test case from 2.5 min. to 40s
- Worked in a fast-paced start-up environment and reported directly to the CTO

TECHNICAL SKILLS

Programming: C#, Java, JavaScript, Python, MATLAB, C, C++, SQL, Scala, PHP
Tools: GIT, Visual Studio, REST APIs, MongoDB, Unity Engine, NumPy, TensorFlow, Sci-Kit Learn
Frameworks: Node.JS, React.JS, .NET, UWP, WPF, Windows Forms

PROJECTS

Mind's Eye: Facial emotion visualizer using Microsoft Cognitive Services, JavaScript and HTML canvas
Machine Learning Match Prediction: Trained a neural network to predict romantic compatibility between two people
Gift Card System: Worked with developers from LightSpeed to create an open-source e-commerce gift card platform
Tomcat Mansion: First person house cat simulation game built using C#, Unity engine and Blender
Eye Bleacher: Created a chrome extension and connected it to a Myo sensor using JS and C++ to replace online images using motion controls
Tower Building Robot: Built a LEGO robot and programmed it in Java to autonomously find blocks and build a tower
Anime Suggestions: Recommendation engine using Java, OpenNLP and MyAnimeList's API
What Should I Do Today?: JavaScript web app that allows people to quickly find activities around the world by clicking a map

ACTIVITIES

Dragon Boat   October 2013 - present
- Part of team Canada at the 2015 and 2017 world championships
- Took part in multiple national championships and won first place in the under 24 division
- Organized and coached multiple youth and adult teams for numerous competitions

McGill Robotics Team   September 2015 - April 2016
- Stimulated competition environment using Gazebo and ROS in Linux
- Attended weekly meetings and work sessions to sync up with team members